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ABSTRACT

This study attempted to evaluate H. J. Eysenck's antisocial behavior (ASB) hypothesis that proposes there is an antisocial temperament which, in interaction with socialization, intelligence, and achievement, puts an individual at significant risk for developing antisocial behavior. Evaluation of Eysenck's ASB hypothesis was conducted with 107 recently paroled young male adults. The Eysenck Personality Questionnaire-Revised was administered to assess temperament characteristics and the Basic Adlerian Scales for Interpersonal Success-Adult was administered to assess socialization. Retrospective data on juvenile behavior were collected, and intelligence and achievement scores were obtained from participants' file data. Results were supportive of Eysenck's ASB hypothesis. The sample differed in predicted directions from test norms in both temperament and socialization. There were also within sample differences in predicted directions between participants with relatively high antisocial behavior history scores in contrast to those with relatively low antisocial behavior history scores. No differences were found for intelligence. However, there was one significant within sample achievement difference with high antisocial participants scoring significantly lower in arithmetic. Reading and arithmetic scores for all participants were below the 20th percentile in comparison to peers. Only 11 percent of the participants had received special education services as public school students. (Contains 31 references.) (Author/CR)

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Troubled Children Grown-up: Antisocial Behavior in Young Adult Criminals

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Abstract

This study attempted to evaluate Eysenck's antisocial behavior (ASB) hypothesis. The hypothesis proposes that there is an antisocial temperament that in interaction with socialization, intelligence, and achievement put an individual at significant risk for developing antisocial behavior. Evaluation of Eysenck's ASB hypothesis was conducted with an all male sample of recently paroled young adults (N = 107) from a large, urban city. The Eysenck Personality Questionnaire-Revised was administered to assess temperament characteristics and the Basic Adlerian Scales for Interpersonal Success-Adult was administered to assess socialization. Retrospective data on juvenile behavior was collected using an adaptation of the National Youth Survey. Intelligence and achievement scores were obtained from participants' file data. All participants had previously been administered the Culture Fair Intelligence Test and the Wide Range Achievement Test – 3. The results were supportive of Eysenck's ASB hypothesis. The sample differed in predicted directions from test norms in both temperament and socialization. There were also within sample differences in predicted directions between participants with relatively high antisocial behavior history scores in contrast to those with relatively low antisocial behavior history scores. No difference was found for intelligence. However, there was one significant within sample achievement difference with high antisocial participants scoring significantly lower in arithmetic. Mean scores in reading and arithmetic for both high and low antisocial participants were below the 20th percentile in comparison to their normative peers. Only 11% of the participants had received special education services when they were public school students.

Troubled Children Grown-up: Antisocial Behavior in Young Adult Criminals

What influences an individual to develop serious antisocial and criminal behavior? Sociologists have attempted to answer this question in terms of social interaction patterns (e.g., Sutherland & Cressey, 1978). Psychologists have searched for answers in the early family interactions of children (e.g., Patterson, Reid & Dishion, 1992). However, biological factors in antisocial behavior have received little attention, particularly in the United States. One well-developed theoretical model that takes into account a significant biological factor, temperament, is the biosocial personality theory of the British psychologist Hans Eysenck (1977, 1997).

Eysenck's model is based on the interaction of three biological temperament source traits with socialization experiences and general intelligence (Eysenck, 1997). Eysenck has identified three temperament traits, Psychoticism (P), Extroversion (E), and Neuroticism (N). Eysenck (1977, 1997) predicts that individuals high on the P, E, and N traits will be at the greatest risk for the development of serious antisocial behavior (ASB). The risk of developing serious behavior problems will be exacerbated by poor socialization and by below average intelligence associated with low academic achievement. The P trait is the primary trait implicated in the development of ASB with elevations on E and N being secondary.

While not part of the temperament based personality theory, a fourth variable that is a product of Eysenck's measurement of personality also plays tertiary role in his ASB hypothesis. This fourth variable is the Lie (L) Scale on the Eysencks' personality questionnaire (H. J. Eysenck & S. B. G. Eysenck, 1975, 1993). The current interpretation of the L Scale is that L is a measure of conformity to social expectations rather than a dissimulation measure. The shift in focus is due to the low L Scale scores that have been routinely obtained in samples with a high P

scores (e.g., Gabrys et al., 1988). A low L Scale score is often interpreted to indicate that an individual is indifferent to social expectations and is not well socialized.

Extroversion is related to the baseline arousal level in an individual's neocortex, which is mediated by the Ascending Reticular Activating System (ARAS) (Eysenck, 1967, 1977, 1997). Individuals high on the E trait exhibit under arousal in the neocortex, which among other things impairs the conditioning of inhibitions to control impulsive behavior (H. J. Eysenck & S. B. G. Eysenck, 1976). Neuroticism is based on differences in the autonomic nervous system, specifically differences in visceral brain activation (VBA), which are dependent upon the hypothalamus and limbic system (Eysenck, 1967). The basal level of responsiveness in the VBA system can produce low to high levels of activation that affect gland activity, heart rate, respiratory level, and perspiration level. High levels of VBA lead to emotionally over reactive and unstable behavior. Psychoticism is polygenic in nature, which means that a large number of genes with individually small effects are inherited. The "small effect" genes are additive and the total number of genes inherited determines the degree of the P trait in the personality. An additional group of genes with large effects that are smaller in number can, when present, contribute to the manifestation of the P trait and the development of psychoses (Eysenck, 1976). Individuals high on P are less responsive to social consequences and have greater difficulty than others in acquiring rule-governed social behavior.

An evaluation of the three temperament traits in serious ASB indicates a primary role for the P trait. The P trait's link to the development of ASB is supported by research indicating a strong relationship between high P trait scores and diagnoses such as Antisocial Personality Disorders, Schizotypal Personalities, Borderline Personalities, and Schizophrenia (Claridge,

1995; H. J. Eysenck & S. B. G. Eysenck, 1976; Monte, 1995). Eysenck (1997) indicates that when high E is combined with high P, poor impulse control and a weakened association between behavior and its consequences will exacerbate the P trait predispositions. When elevation on the N trait is combined with high P, the P trait predispositions are exaggerated by emotional over reaction and a tendency toward irrational thinking. Eysenck (1997) indicates that elevated E is more frequently found among juvenile delinquents and elevated N appears to be more frequent in adult criminals. Eysenck and Gudjonsson (1989) suggest that this difference between the two groups on the E trait may be an artifact of incarceration. They think incarceration for significant periods may suppress the expression of the E trait and its measurement.

Eysenck and Gudjonsson (1989) also discuss the interaction of socialization and general intelligence with the P, E, and N traits. They propose that socialization experiences that are inadequate due to home or community conditions or both will negatively interact with a difficult temperament and increase significantly the likelihood of an antisocial outcome. Further, they propose that a child with below average intelligence and a difficult temperament is also at an increased risk for the development of ASB. Such children will likely fail at school tasks and experience a significant level of frustration and stress. This in turn will increase the likelihood that the P trait will lead to an antisocial outcome.

Eysenck's ASB hypothesis has been extensively researched in both juvenile and adult populations (e.g., S. B. G. Eysenck & H. J. Eysenck, 1977; Heaven, 1993). Much of the research has involved samples of individuals exhibiting high levels of ASB such as criminals and juvenile delinquents. School children with high levels of teacher reported or self-reported aggressive and antisocial behavior have also been studied.

A recent review of studies evaluating the ASB hypothesis in children and adolescents found strong support for the hypothesis (Kemp & Center, 1998). Twenty studies were reviewed with six (30%) indicating elevated P, E, N and low L in children and adolescents exhibiting ASB exactly as predicted. Seven of the 20 studies (35%) supported the ASB hypothesis on 3 of the 4 predictions. Three of the 20 studies (15%) supported the hypothesis on 2 of the 4 predictions. Three of the 20 studies (15%) supported one of the predictions. Only one study (5%) found no support for any of the predictions. None of the studies reported contrary findings for the P Scale with one and two studies having contrary findings on the E and N Scales, respectively. There was one study with a contrary finding for the L Scale.

Evaluation of the ASB hypothesis in adults frequently employs large samples of prisoners. For example, S. B. G. Eysenck and H. J. Eysenck (1977) administered the Eysenck Personality Questionnaire (EPQ) to a sample of 2,070 male prisoners and 2,442 male controls. Participants were selected randomly and matched for age. The results indicated a significant ($p < .001$) difference between the overall prisoner and the control groups in the predicted direction on the P, E, and N Scales. The overall results for the L Scale indicated a slightly weaker difference ($p < .01$) in the predicted direction. However, analysis of the differences in the groups at different age levels was not always consistent with prediction on L or E. Prisoners below the age of 30 had significantly ($p < .01$) higher L Scale scores in comparison to controls. There were also no significant differences on the E Scale between prisoners and controls below the age of 40.

In a smaller scale study (S. B. G. Eysenck, Rust, & H. J. Eysenck, 1977), the prisoners (N = 156) participating in the study were divided into five groups based on offenses. Participants

were evaluated using the P, E, and N Scales of the EPQ and several physiological assessments such as galvanic skin response and eye-blink conditioning. The participants showed variability across groups on both types of measures, but only the EPQ results will be discussed. Analysis of variance indicated that the groups differed significantly on P ($p < .01$, $F = 3.60$) and N ($p < .05$, $F = 3.04$). No significant difference was found across the groups on E (p = n.s., $F = 1.55$), which is contrary to the findings in S. B. G. Eysenck and H. J. Eysenck (1977).

The research support for the ASB hypothesis is strong in juvenile and adult populations. However, the socialization and intelligence interactions with temperament proposed in Eysenck's ASB hypothesis are largely unexplored. The purpose of the present study was to examine Eysenck's ASB hypothesis using a sample of young adult offenders. The study attempted to obtain data bearing on several predictions from Eysenck's ASB hypothesis. These predictions include significantly different temperament and socialization profiles and measured intelligence/achievement between individuals with histories of antisocial behavior and the typical individual in the general population.

Method

Participants and Setting

Participants in the study were 112 young adult males being released on parole from a state prison system. Incomplete and invalid data (e.g., choosing the same answer on every item of an instrument) resulted in the loss of five participants and the final sample consisted of 107 participants. The participants ranged in age from 19 through 30 years, with only one participant at each of the extreme ends of the range. The mean age of the participants was 25.7 with a standard deviation of 2.5. All of the participants were male and 98% were African-American.

The preponderance of African-Americans in the sample was an artifact of the population available from which to take the sample (i.e., parole offices in a large urban city). The range of offenses committed by the participants varied from murder to making false statements and were categorized as aggressive or non-aggressive (see Table 1). Only 11% of the sample (n = 12) had received special education services while in the public school system. All data collection in the study took place at three parole offices in a large, urban city in the summer of 1999. Participation in the study was voluntary, but very few potential participants declined participation (n = 4). Therefore, the sample obtained for this study is believed to be highly representative of the target population (i.e., paroled offenders between the ages of 19 and 30).

Insert Table 1

About Here

Instruments

Three instruments were administered to the participants, the Eysenck Personality Questionnaire-Revised (EPQ-R) (H. J. Eysenck & S. B. G. Eysenck, 1993), the Basic Adlerian Scales for Interpersonal Success-Adult (BASIS-A) (Wheeler, Kern & Curlette, 1993), and an adapted form of the National Youth Survey (NYS) (Elliott, Ageton, Huizinga, Knowles & Canter, 1983). The instruments used in the study served separate and complementary functions. The EPQ-R provided a temperament profile of the parolees to evaluate Eysenck's ASB hypothesis. The theoretical basis for the EPQ-R has already been discussed at some length in an earlier section.

The BASIS-A provided data on participants' perception of their socialization. For the authors, socialization means the effect of that aggregate of experiences that an individual accumulates within the context of the interpersonal dynamic of the family and community (i.e., school and peers) during the developmental period. Assessment of socialization especially in adolescents and adults must be done either retrospectively or inferentially. Of necessity, retrospective data will be largely self-report data and inferential data will be deduced from current behavior. Neither type of data is ideal but they represent what is obtainable. In the present study, the BASIS-A was chosen to collect retrospective data on socialization because this instrument was designed to assess social experiences during the developmental period and the personal meaning attached to those experiences. This in the authors' view provides one perspective on the probable socialization of a participant. A participants behavioral history also bears on prior socialization and one can infer that the more common antisocial behavior is the weaker one's socialization.

The NYS provided a retrospective account of the participants' juvenile behavior, which may differ from the behavior resulting in their convictions. This could be important because a conviction offense may not accurately reflect the range of antisocial and aggressive acts committed by a participant (i.e., conviction offense is not necessarily equivalent to behavioral history) (Dunford & Elliott, 1984). Thus, the self-report NYS data provided a more complete report on the participants' behavioral history and therefore by implication their degree of socialization.

In addition to completing the instruments administered, all participants agreed to the release of intelligence and achievement information from their files. All participants were

previously evaluated for intelligence with the Culture Fair Intelligence Test (CFIT) (Catell & Catell, 1963). The participants were also evaluated for achievement with the Wide Range Achievement Test- 3 (WRAT-3) (Wilkinson, 1993) in the areas of reading and arithmetic. A description of all measures used for data analysis follows.

Eysenck Personality Questionnaire- Revised. The EPQ-R is a 100-item questionnaire that was designed to measure the temperament source traits in Eysenck's model. The EPQ-R requires approximately 15 to 40 minutes to complete depending on the reading skill of a respondent. H. J. Eysenck and S. B. G. Eysenck (1994) indicate the scales have evolved over forty years and hundreds of experimental studies. The Buros' Eighth Mental Measurements Yearbook lists over 700 studies in which a form of the EPQ was used (Eysenck, 1981). The normative sample for the EPQ-R included males (n = 508) aged 25.43 + or – 12.89 years and females (n = 873) aged 26.79 + or – 13.23 years. Reliabilities reported for the scales are within the moderate to high range (from .66 to .86). The scales are low in inter-correlation (from .04 through -.28) indicating that the scales are orthogonal (i.e., an individual elevated on one scale will not necessarily be elevated on another scale) (H. J. Eysenck & S. B. G., Eysenck, 1994).

Basic Adlerian Scales for Interpersonal Success - Adult. The BASIS-A is a 65- item questionnaire based on Adlerian personality theory (Wheeler, Kern & Curlette, 1993). Adlerian theory focuses on the development of a lifestyle rooted in early socialization experiences within the family (Kern, Wheeler & Curlette, 1993). The BASIS-A requires approximately 10 to 20 minutes to complete depending on the reading skill of the respondent. BASIS-A items address experiences in both the home and school environments. The norms for the instrument were derived from multiple studies using samples of convenience (Curlette, Wheeler & Kern, 1993).

The internal consistency of the BASIS-A scales range from .82 to .87 and test-retest reliabilities range from .66 to .87 (Curlette, et al., 1993). The BASIS-A contains the following scales; Belonging-Social Interest (BSI), Going Along (GA), Taking Charge (TC), Wanting Recognition (WR), and Being Cautious (BC). The BASIS-A Interpretive Manual (Kern, et al., 1993) provides a description of individuals scoring both high and low on the scales. The BSI and GA Scales relate to an individual's degree of social interest and of rule-governed behavior respectively. The TC Scale relates to an individual's willingness to take the lead, while the WR Scale relates to one's need for recognition. The BC Scale relates to an individual's level of trust in other people.

The National Youth Survey. The NYS has been administered to random samples of youth aged 11 through 17 (Elliott et al., 1983). The NYS is regarded as a valid and reliable measure for assessing juvenile deviance (Liska & Messner, 1999). The NYS provides a measure of delinquent behavior with items based on offenses chosen from the FBI's Uniform Crime Reports. Any offense that more than 1% of the juvenile population had committed was included on the NYS. The NYS contains items measuring aggressive (e.g., assault), non-aggressive (e.g., property destruction), drug use, and runaway behavior.

An adapted version of the NYS administered in the present study used a paper and pencil response rather than the original interview format. The participants in the present study were asked to retrospectively rate the frequency with which they engaged in each of 20 delinquent behaviors. Participants responded to each item twice, once for frequency before the age of 12 and again for frequency from the age of 12 through 19. Labeled ratings were employed as follows: 0) Never, 1) Once a month, 2) Once every 2-3 weeks, 3) Once a week, 4) 2-3 times a

week, 5) Once a day, 6) 2-3 times a day. The adapted NYS required about 10 to 15 minutes to complete. The item content of the adapted NYS remained virtually unchanged. The test-retest reliability of the adapted NYS was high (r = .95) as assessed over a two-week interval in a group of young adults. The adapted NYS was used to compute a total antisocial behavior score for later use in analysis.

Items on the NYS were organized into four behavioral categories. Seven of the 20 items on the adapted NYS assessed aggressive behavior, for example, assault, verbal threats, and sexual coercion. Ten items on the NYS assessed non-aggressive behavior, for example, theft, vandalism, and selling drugs. Two of the remaining three items assessed the frequency of drug use and the last item assessed running away from home. Category scores were computed for two age levels (under 12 and 12-19 years) by summing frequency ratings for the items in each category. A total category score was computed for each of the four categories by combining the within category scores for the two age levels. A grand total score was computed by summing all four total category scores.

Culture Fair Intelligence Test. The CFIT, Scale 3 (Catell & Catell, 1963) is used with individuals who are 14 or older. The CFIT is designed to provide an unbiased measure of intelligence in individuals with minority cultural and language backgrounds. The CFIT (M = 100, SD = 24) is a group-administered test composed of figural analogies and reasoning items. The standardization sample (N = 3,140) has been criticized for inadequate description (Salvia & Ysseldyke, 1988). Reported reliabilities for internal consistency range from .51 to .68 and equivalent form reliability ranged from .32 to .68 (Salvia & Ysseldyke, 1988).

Wide Range Achievement Test-3. The WRAT-3 (M = 100, SD = 15) is an individually administered general achievement test (Wilkinson, 1993). The WRAT-3 is designed to measure basic reading, spelling, and arithmetic in individuals ranging in age from 5 to 75. The normative sample (N = 4,433) was stratified based on age, gender, ethnicity and socioeconomic status. Reported test-retest reliabilities were over .90. The validity of the WRAT-3 has been established by favorable comparison to other achievement measures such as the Wechsler Individual Achievement Test (Smith & Smith, 1998).

Procedure

All of the participants were recently paroled from a state prison system and assigned to parole offices in the city in which the study was conducted. All parolees were required to attend a parole orientation session shortly after their release. Following the parole orientation, prospective participants were asked if they would be willing to answer a series of three questionnaires, which were briefly described for them. Participants agreeing to take part in the study signed a release of information and consent form. Participants agreed to the release of the following information; type of conviction, IQ score, and achievement scores. Parolees taking part in the study were informed that taking part in the study would in no way affect their parole. Parolees were also informed that their answers to the questionnaires would be compiled only in aggregate form and no personally identifying information would be released. Assurance was also given the parolees that the person administering the questionnaires was in no way affiliated with the board of Pardons and Paroles.

The questionnaires were administered to the participants in groups of from four to 20. Questionnaires were administered in a counterbalanced order. To ensure that participants

understood the items, all questionnaires were read aloud. Length of time for administration ranged from 35 to 65 minutes.

Results

The principal analysis was a two-way ANOVA employing two fixed categorical variables, official conviction offense and self-reported antisocial behavior on the NYS. The first categorical variable, offense, had two levels, participants with convictions for aggressive offenses (n = 43) and non-aggressive offenses (n = 64) (see Table 1). The second categorical variable was antisocial behavior and had two levels comprised of participants above and below the median NYS total score (Mdn = 30). Participants above the median (n = 50) had a higher total antisocial score than participants below the median (n =57). Means, standard deviations and ranges are provided in Table 2. In addition, the percentage of participants above and below the mean as children and adolescents for each of the aggressive, non-aggressive, drug use and running away categories is also provided.

Insert Table 2

About Here

The two-way ANOVA yielded no significant main ($F = 1.07$, $p = .39$) or interaction effect ($F = 1.17$, $p = .32$) for the first factor, offense. The second categorical variable was antisocial behavior, which yielded a significant main effect ($F = 5.43$, $p < .01$). A one-way ANOVA was used to test for significant within sample differences in temperament, socialization, intelligence and achievement. A comparison of the parolee sample with the norms for EPQ-R (n = 508) and the BASIS-A (N = 1,083) was conducted using multiple t- tests with a Bonferroni

correction to control for Type I Errors. The dependent variables were the P, E, N, and L Scales from the EPQ-R and the BSI, GA, TC, WR, and BC Scales from the BASIS-A. Additional dependent variables were the IQ score obtained on the CFIT and the Arithmetic and Reading Scales of the WRAT- 3.

A comparison of the parolee group with the EPQ-R norms yielded significant differences ($p < .01$) between the groups on the P ($t = 8.79$) and L ($t = 5.44$) Scales. The mean P score for the parolees ($M = 9.64$, $SD = 4.37$) was significantly higher than that for the normative group ($M = 5.72$, $SD = 3.21$). This difference is in the predicted direction. The mean L score for the parolees ($M = 8.02$, $SD = 4.12$) was also significantly higher than that for the normative group ($M = 6.22$, $SD = 3.79$. The elevated L score for the parolees is counter to prediction. No other significant differences were found between the groups on the EPQ-R.

A comparison of the parolees with the norms for the BASIS-A yielded significant differences ($p < .01$) on the GA ($t = -6.58$) and WR ($t = -3.76$) Scales. The parolees were significantly lower ($M = 24.5$, $SD = 6.85$) on the GA Scale than the normative sample ($M = 29.01$, $SD = 5.745$). Parolees were also significantly lower ($M = 41.5$, $SD = 5.8$) on the WR Scale than the normative sample ($M = 43.69$, $SD = 5.323$). The differences between the parolees and the norms are in line with prediction.

A sub-sample analysis indicated a significant difference ($p < .01$) between the high antisocial group and the EPQ-R norms on the P ($t = 11.21$) and N ($t = 3.4$) Scales. There was also a significant difference ($p < .01$) between the low antisocial group and the EPQ-R norms on the P ($t = 3.49$) and L ($t = 5.82$) Scales. The elevated P and N scores in the high antisocial group are consistent with the ASB hypothesis. The elevated P score in the low antisocial group is also

consistent with the ASB hypothesis, but the elevated L score is counter to prediction. The differences found in this analysis indicate some heterogeneity in the parolee sample.

Comparison of the high antisocial group with the norms for the BASIS-A yielded significant differences on four of the five scales. Two of the differences were significant at the $p < .01$ level. The high antisocial group was significantly different from the norms on the GA ($t = -9.1$) Scale ($M = 20.7$, $S.D. = 6.3$ versus $M = 29.01$, $S.D. = 5.745$) and on the TC ($t = 3.96$) Scale ($M = 24.3$, $S.D. = 7.4$ versus $M = 20.09$, $S.D. = 5.987$). The other two differences were at the $p < .05$ level. The high antisocial group was significantly different from the norms on the WR ($t = -3.03$) Scale ($M = 41.2$, $S.D. = 5.7$ versus $M = 43.69$, $S.D. = 5.323$) and on the BC ($t = 3.11$) Scale ($M = 21$, $S.D. = 6.9$ versus $M = 17.9$, $S.D. = 6.549$). Comparison of the low antisocial group of parolees with the normative sample resulted in no significant differences on any of the BASIS-A scales. The results indicate differences in the interpretation of their socialization by participants in the high and low antisocial groups. The differences suggest poorer socialization experiences for the high antisocial group.

A within sample analysis was performed using a one-way ANOVA to contrast the participants with relatively low antisocial scores with those who had relatively high scores. The high antisocial group differed from the low antisocial group in the predicted direction on the P, N, and L Scales ($p < .001$). There was no significant difference between the groups on the E Scale (see Table 3). Differences between the high and low antisocial groups in the predicted direction were also obtained for the BASIS-A. The high antisocial group differed from the low antisocial group on the GA, TC, and BC Scales ($p < .001$). There was no significant difference between the groups on the BSI or WR Scales (see Table 4).

Insert Tables 3 & 4

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The CFIT did not reveal any deficits in intellectual functioning in either the high ($\underline{M}$ = 103.18) or the low ($\underline{M}$ = 104.5) antisocial group of parolees. Further, with a mean score of 100 for the CFIT there is no practical difference between this sample and the norms for the CFIT. However, results from the CFIT should be viewed with a degree of caution due to criticisms of the CFIT's large 24-point standard deviation and inadequate description of its normative sample (Salvia & Ysseldyke, 1988). The comparison of the high and low antisocial groups on the WRAT-3 Scales yielded only one significant difference between the groups. The high antisocial group was significantly lower on the Arithmetic Scale of the WRAT – 3 than the low antisocial group ($\underline{F}$ = 6.106, $\underline{p}$ < .015). However, both groups were low in achievement with WRAT- 3 Reading Scale grade equivalents of 8.6 in the high antisocial group and 9.1 in the low antisocial group. Arithmetic grade equivalents were 7.0 in the high antisocial group and 7.9 in the low antisocial group.

Discussion

This study attempted to obtain data bearing on several predictions based on Eysenck's ASB hypothesis. Previous studies in children and adults have found support for the antisocial temperament proposed by Eysenck. Very little if any attention has been given to the roles of the socialization, intelligence, and achievement components of the ASB hypothesis. The present study attempted to address socialization, intelligence, and achievement for a more thorough evaluation of Eysenck's ASB hypothesis.

This study supported the findings of previous studies concerning temperament characteristics in samples of criminals (S. B. G. Eysenck & H. J. Eysenck, 1977; S. B. G. Eysenck, Rust, & H. J. Eysenck, 1977). Eysenck (1977, 1997) hypothesized that the elevated P, E, N and low L temperament profile placed an individual at the greatest risk for the development of serious antisocial behavior. Parolees in the high antisocial group most closely matched Eysenck's hypothesis. The high antisocial group was significantly higher than the normative sample for the EPQ-R on the P and N Scales. The high antisocial group was also significantly higher than the low antisocial group on the P and N Scales and significantly lower on the L Scale. While the high antisocial group had a lower L Scale score than the low antisocial group, neither group fell significantly below the norms. The low antisocial group was even significantly higher than the norms. The findings for the L Scale are counter to prediction. However, elevated L scores in prisoners below the age of 30 are not unique to this study. S. B. G. Eysenck and H. J. Eysenck (1977) also found higher L Scale scores in prisoners below the age of 30 in comparison to their control group. The trend for elevated L Scale scores was reversed in the older prisoners and was in line with prediction. The contrary findings for the L Scale in younger prisoners may represent an effort at impression management that has been largely abandoned in older prisoners.

No significant differences were found on the E Scale between the high antisocial group and the norms or the low antisocial group. S. B. G. Eysenck and H. J. Eysenck (1977) also failed to find a significant difference between prisoners and controls below the age of 30 on the E Scale. This finding has been hypothesized to be due to either a depressed expression of the E

trait due to incarceration or simply due to a smaller role for this trait in adult criminality than predicted (Eysenck & Gudjonsson, 1989; Eysenck, 1997).

The assessment of socialization using the BASIS-A indicated significant differences between the high antisocial group and the BASIS-A norms and between the high antisocial group and the low antisocial group. The high antisocial group was significantly lower on the GA Scale than both the norms and the low antisocial group. The high antisocial group was also lower on the WR Scale than the norms. The low scores of the high antisocial group on these scales indicate weak rule-governed behavior and a tendency to be confrontational. The low scores also indicate of a lack of desire for or concern about the respect and approval of others. A low score on GA often indicates negative early experiences leading to a high degree of defensiveness. Typical of individuals with such a score is a belief that the world is a potentially hostile place against which one must strike out. A low score on WR indicates a lack of approval and acceptance from others in early childhood. This lack of early approval often results in a subsequent disregard for the approval and affirmation of others (Kern et al., 1993).

The high antisocial group was elevated on the TC and BC Scales in comparison to both the norms and the low antisocial group. The elevated TC Score in this group suggests a willingness to take the lead, impulsiveness, and a low level of trust in others. A high BC Score is characteristic of individuals who experienced a chaotic early childhood, which often leads to a risk taking behavioral style and unpredictable reactions to emotional stimuli.

The findings in this study do not support a role for intelligence in antisocial behavior as predicted. The participants as a group had a mean IQ of 103 (CFIT, $\underline{M}$ = 100) and all scores fell within the plus or minus one standard deviation range. The low versus high antisocial subgroups

did not significantly differ from one another on IQ. A better case can be made for the possible role of achievement. The sample's reading and arithmetic scores placed them at between the 12th and 19th percentile for adults. There was one statistically significant difference between the low and high antisocial subgroups. The high antisocial group was significantly lower on arithmetic than the low antisocial group. Kauffman (1982) reports results from three studies that found significantly lower arithmetic achievement relative to reading in children with behavior disorders, which is similar to the results for young adult parolees in the high antisocial group. Thus, it appears that poor achievement and above normal levels of the P trait put one at serious risk for developing antisocial behavior. The risk appears to increase when the N trait occurs at above normal levels and when there are indications of a deviant socialization.

In summary, the CFIT and the WRAT-3 indicate that as a group the young adult parolees in this study have normal intelligence and low levels of academic achievement. The EPQ-R indicates deviant P trait levels in the sample as a whole. The EPQ-R and BASIS-A scores for the high antisocial group indicate problem profiles for both temperament and socialization. The high antisocial group appears to be at greater risk for poorer future outcomes than the low antisocial group. The high antisocial group should be expected to have a higher recidivism rate and to exhibit more parole violations and of a more serious nature. Some support for this prediction has already been developed (Putnins, 1982; D. E. Smith & D. D. Smith, 1977). Smith and Smith found that the higher the P Scale score in a parolee the more likely a subsequent conviction for a new offense. Further, the low antisocial group should be more responsive to rehabilitation programming.

It is surprising that only 11% of the participants had been identified and placed in special education programs as children. Given the current low levels of functioning in reading and arithmetic and the reported behavior histories, the authors would expect many if not most to have been eligible of special education services for students with behavior disorders. One would hope that provision of behavior disorders services for children with the characteristics these parolees probably had, as children would improve their adult outcomes. The authors think that the characteristics of these participants suggest a significant failure in the legal requirement for schools to identify students with disabilities.

The findings in this study clearly support further research on Eysenck's ASB hypothesis and suggest that it could be particularly useful for identifying school-age children and youth at-risk for developing serious antisocial behavior and becoming adult criminals. Previous research (Lane, 1987; Putnins, 1982) found that P Scale scores predicted subsequent conviction for delinquent behavior. Lane also found that the P Scale was significantly correlated with severity, persistence and violence of offenses. There is in the opinion of the authors a clear need for preventive and corrective programming to help stem the rising tide of antisocial behavior in our public schools and our communities. Identification of risk characteristics can help target programming where there appears to be the greatest need for it. Knowledge of characteristics associated with the development of antisocial behavior should also improve the design and effectiveness of preventive and corrective programs.

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Table 1

Classification of participant offenses as aggressive or non-aggressive and their prevalence.

Aggressive	n	%	Non-aggressive	n	%
False Imprisonment	1	1	Theft by Deception	1	1
Murder	1	1	Possession of Cocaine	17	15.9
Involuntary Manslaughter	1	1	False Statement	1	1
Kidnapping	1	1	Burglary	8	7.5
Voluntary Manslaughter	5	4.7	Theft by Receiving	16	15
Robbery	12	11	Theft by Taking	1	1
Aggravated Battery	1	1	Controlled Substance	1	1
Possession of Firearm	2	1.9	Theft by Shoplifting	2	1.9
Statutory Rape	1	1	Sale/Distribution of Drugs	7	6.5
Aggravated Assault	6	5.6	Forgery	5	4.7
Armed Robbery	12	11	Fraud/Credit Card Theft	1	1
			Altered I.D.	1	1
			Obstruction of Law Enforce.	3	2.8
Total	43	40	Total	64	60

Table 2

Descriptive data on the four NYS sub-categories at two age-levels including the percent of the sample above and below the mean for each category.

NYS Items	Mean	SD	Range	% Low	% High
Aggressive (Child)	2.3	3.4	0 – 22	67	33
Aggressive (Adolescent)	4.8	5.3	0 – 30	67	33
Aggressive (Total)	7.2	8.4	0 – 52	65	35
Non-aggressive (Child)	5.8	7.3	0 – 35	71	29
Non-aggressive (Adolescent)	16	9.8	0 – 43	55	45
Non-aggressive (Total)	21.8	14.9	1 – 74	55	45
Drug Use (Child)	.60	1.4	0 – 07	86	14
Drug Use (Adolescent)	3.8	2.7	0 – 10	54	46
Drug Use (Total)	4.4	3.4	0 – 15	53	47
Run away (Child)	.3	.8	0 – 05	82	18
Run away (Adolescent)	.5	1.0	0 – 05	76	24
Run away (Total)	.8	1.7	0 – 10	81	19

Table 3

A comparison of two sub-samples relatively high and low on history of antisocial behavior on the EPQ-R.

	High (n = 50)		Low (n = 57)				
Scales	Mean	SD	Mean	SD	df	F	P
P	12.1	3.9	7.5	3.7	1, 106	39.383	.000
E	15.3	4.1	14.1	4.3	1, 106	2.037	.156
N	13	4.8	8.9	4.8	1, 106	19.147	.000
L	6.2	3.3	9.6	4.2	1, 106	22.173	.000

Table 4

A comparison of two sub-samples relatively high and low on history of antisocial behavior on the BASIS-A.

	High (n = 50)		Low (n = 57)				
Scales	Mean	SD	Mean	SD	df	F	P
BSI	33.9	5.2	34.4	5.1	1, 106	.254	.615
GA	20.7	6.3	27.9	5.5	1, 106	39.248	.000
TC	24.3	7.4	18.5	6.0	1, 106	20.176	.000
WR	41.2	5.7	41.7	6.0	1, 106	.166	.685
BC	21.0	6.9	16.4	5.8	1,106	14.211	.000